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# PUBLIC HEALTH REPORTS

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## CEREBROSPINAL MENINGITIS EPIDEMIC.

The outbreak of cerebrospinal meningitis that has been in progress during the last six or eight weeks does not seem to be extending into new territory to any considerable extent. From reports received it is known that localities in the States of Arkansas, Tennessee, Kentucky, and southern Illinois have been involved. If the disease has been epidemic in other States, the fact has not as yet been made known.

Sporadic cases of cerebrospinal meningitis occur almost continually throughout the country. Only occasionally does the disease become acutely epidemic, and, starting from one or more foci, have a tendency to spread over considerable territory. Last year the center of the outbreak was in Texas, and the disease spread into Oklahoma and neighboring States. This year the center of the epidemic has appeared to be in Arkansas, Tennessee, Kentucky, and southern Illinois. From the course the disease has taken it is expected that the present epidemic will soon be under control.

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## PLAGUE.

### THE RELATION BETWEEN TRAFFIC AND THE SPREAD OF PLAGUE.<sup>1</sup>

By W. C. RUCKER, Assistant Surgeon General, United States Public Health Service.

Sanitary science in the ultimate analysis resolves itself into a defense against the animal and vegetable forms of life which produce disease in man. It is a manifestation of the law of the survival of the fittest through the erection of bulwarks of one sort and another against those agencies which will exterminate man if man does not control them. All nature is at war one with the other. Each species has its natural enemies. Man in particular has been assailed since the beginning of time by a myriad of hostile lower-life forms,

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<sup>1</sup> Read before the joint session of Sections V and VII, Fifteenth International Congress on Hygiene and Demography, Washington, D. C., Sept. 27, 1912.

and it is to the constant whetting of the wits in this struggle for supremacy that he owes the development of his superior intelligence.

With the dawn of reason came traffic, and man as the only animal that sells and barter has been obliged to erect special barriers to prevent his vegetable and animal foes from attacking him through the avenue of commercial intercourse. Disease, which, after all, is but an outward and visible presentment of this never-ceasing battle, has always been recognized as the constant companion of commerce, and of no disease in particular is this more true than of plague. Who can doubt that at some remote age plague was confined to some small valley, from which it has been carried to all parts of the globe by the roads of trade "which lead you o'er the world?" What galley seeking Cornish tin brought the first plague rat to England just as the Ark of the Covenant carried the disease to the Philistines?

The relation of traffic to the spread of bubonic plague is a simple equation, the one being to the other directly as the opportunity which traffic affords for the spread of rats from plague foci. It may therefore be taken as axiomatic that if we would prevent traffic from spreading plague we must concentrate our efforts on the prevention of the migration of rodents in traffic. If we successfully control the peregrinations of the murinæ we will control the spread of plague, because for all practical purposes man may be disregarded as a great factor in the grand tactics of plague. It is true that human pneumonic plague has been held responsible for certain outbreaks, and it is also a fact that verminous persons suffering from the septicemic form of the disease have acted as infection nidi, but these are local matters only and bear no vital relation to the world-spread of plague. Plague usually passes from rats to man, not from man to rats.

It were better that the sanitary authorities had constant and accurate information as to the existence of rodent plague in the various ports, but unfortunately such knowledge is not always obtainable, or is perhaps obtained too late to prevent an exodus of the disease from a previously unrecognized focus of rodent plague. The measure then is obvious—let there be a world-wide embargo on rats. Let no rat take passage on any ship whatsoever, and if at the port of destination any rat is found on board, the penalty which he shall suffer is death. Every ship-borne rat must be regarded as a potential enemy not only to the life but also to the prosperity of man. Emphasis may be laid on the ship-borne rat because the overland spread of plague is not of material influence on the end result. Plague does not follow the caravan routes by reason of the transportation of rats; in fact, it is more than probable that verminous persons act as disseminating agents in such a situation; the carriage of infected rodents by freight trains undoubtedly does occasionally occur, but these are matters of minor consideration in the universal spread of plague in which the chief agent is the ship-borne rat.

We have laid too much stress in the past on the human passenger, and we have paid too little attention to the rodent passenger. It is futile to examine and detain persons who have been exposed to plague infection and to neglect rodents which actually have the disease. It is equally absurd to quarantine against passengers from infected ports and to permit the landing of rats from ports which are considered safe merely because plague has not been reported from them. There is only one policy which we can logically pursue; that is to regard all ship-borne rats as elements of danger and to prevent their entering or leaving ships, and to confine our operations against passengers to the prevention of embarkation by persons actually suffering from the disease or in a verminous condition. It is time that there was a revision of the regulations of the International Sanitary Convention of Paris to meet the present-day interpretation of the method of the dissemination of bubonic plague. It is the plague rat which we must prevent from taking passage, and we should not confine our attention to the human passenger.

The first element in preventing rats from entering ships is a rat-proof water front. This is not only a matter of importance in relation to the spread of plague by traffic; it is also an insurance against the fire and destruction losses which rodents cause. Rat-free vessels need not be obliged to breast-off from rat-proof, rat-free wharves. This facilitates the handling of cargo, because vessels may then discharge at the dock on one side and to lighters on the other.

It is equally necessary that vessels be prevented by other means from receiving rats while tied up to the wharf and from discharging them under similar conditions. For this purpose the use of proper rat guards on mooring lines is to be recommended, care being taken that the guards are always perpendicular to the line, and that they are of sufficient diameter to prevent rats from leaping over them. It is entirely practical to construct a wharf and vessel in such a way that rats will be captured almost as soon as they get on them. For this purpose, when the dock is built, or the ship is laid down, suitable runways, which will entice the rats, should be installed. By means of swing doors, which operate from a platform, it is very easy to capture all the rats on board of a ship, or on a dock, in this way. The rats are imprisoned in the runways and can at any convenient time be driven by smoke or other means into a common chamber, the doors of which can be shut, and the rodents asphyxiated.

It is not, however, practicable at the present time to secure an immediate world-wide adoption of the measures above referred to. This is a matter for the coming years, one demanding and deserving our careful and continuous labors. In the meantime, the periodic fumigation of ships for the purpose of killing the rats thereon is a most desirable measure. This may be accomplished by the use of

sulphur dioxide, produced by the old pot and pan method, or injected by one of the various types of machines devised for this purpose. The corrosive effect of this gas, however, and the deterioration which it produces on fine fabrics, are serious objections to its frequent use, particularly upon vessels of the finer type. Carbon monoxide has been successfully used for this purpose, and recently the United States Public Health Service has adopted a special apparatus for this purpose. If the larger steamships could be induced to install this apparatus on board, and to use it themselves at frequent intervals, many of the difficulties of the eradication of the ship-borne rat could be overcome. Just one point about the fumigation of ships to kill rats. No portion of the vessel should be overlooked. Lifeboats should be swung out, and any rats contained therein should be driven out with live steam. Unless such measures are enforced with the greatest care, a few rats remain in spite of repeated fumigations.

In conclusion, it may be stated that where trade will go, there rats will go, and where rats will go, there plague will go. The relation between traffic and the spread of bubonic plague, therefore, resolves itself into the relation between traffic and the spread of rats. If this murine enemy of man can be banished from the highways of the world—if his isolation from the human species can be made complete and lasting—then shall we have won the victory over plague. That such a culmination will crown the labors of the working, teaching, sanitarians of to-day is not beyond the bounds of possibility; but we must work and we must teach, and we must by wise rules and regulations bring about an antipathy toward the rat which is greater than the present antipathy toward the snake. We must inculcate the lesson that the rat is the most expensive animal which man maintains, and that the limitation of this species, its isolation from the dwelling place of man, and the control of its migrations are as important from an economic as from a humanitarian standpoint.

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## **MEDICAL INSPECTION OF SCHOOL CHILDREN.**

### **ITS PRACTICE AND RESULTS IN MANILA, PHILIPPINE ISLANDS.**

By CARROLL FOX, Passed Assistant Surgeon, United States Public Health Service.

As the medical inspection of school children is such an important branch of a modern health organization in all civilized countries, it might be considered by many an exaggeration to state that it is even more important in the Philippine Islands than elsewhere. And yet it is believed that this statement can truly be made, for even in Manila, where doctors are numerous a great majority of the poor people will never consult one under any circumstances; and again there are entire Provinces without any physician except the